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EXAMINER

POLTORAK, PIOTR

ART UNIT	PAPER NUMBER
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2134

MAIL DATE	DELIVERY MODE
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01/17/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

09/896,321

Applicant(s)

HUNT ET AL.

Examiner

Peter Poltorak

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,7,10,12,20 and 29-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-2,7,10,12,20,29-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/29/07 has been entered.

Response to Amendment

2. Applicant arguments have been carefully considered.
3. *Applicant argues that "comparing of the two fingerprints as disclosed in Margolus (para. 006) is not the same as having 'the client message digests uniquely identify contents of the client files via unique fingerprints corresponding to the client files, wherein the unique fingerprints are generated based on the contents of the client files by performing a cryptographic hash of the contents of the client files' as recited by claim 1."*
4. The examiner did not find any support for applicant assertion. However, to address applicant's arguments, the examiner points to pg. 2-3 paragraph 5, citing Huang's disclosure of "the client message digests uniquely identify contents of the client files via unique fingerprints corresponding to the client files, wherein the unique fingerprints are generated based on the contents of the client files by performing a cryptographic hash of the contents of the client files".

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5. *Applicant argues that "A unique fingerprint that is based on the contents of each client file and used to identifies the contents of each client file (claim 1) is not the same as 'a fingerprint [that] serves as a unique name for the file data" as disclosed by Margolus (para. 006; emphasis added)'"*.

6. It appears that applicant misunderstood the cited art. The important point that should be kept in mind while examining the prior art cited by the examiner is that hash is a cryptographic representation of the data that uniquely identifies data content (as it is articulated by Margolus, for example, who in [6] recites: "if two file fingerprints don't match, then the files are different.")

7. *On pg. 8-10, applicant recites different fragments of Huang, Margolus, Chan and Bolosky's teaching and suggests that they contrast claim 1 limitations:*

The limitation argued by applicant appears to be previously presented limitation and the examiner did not find any support in applicant remarks for applicant's assertion. As a result, applicant arguments are not found persuasive and the examiner points to the previous Office Action that articulates how Huang in view of Margolus and further in view of Chan or alternatively in further view of Bolosky teach limitations of claim 1.

8. *On pg. 10, applicant argues the newly introduced limitation into claim 1: "wherein the synchronizing of the client files and the server files includes marking un-matching files of the client files and the server files to be copied to a repository for matching to be synchronized at a later time".*

The limitation is not understood. The limitation suggests that in synchronization process there are at least three parties: a client, a server and a repository.

However, the specification clearly teaches two entities: a client and a repository, wherein the files not found on the client are synchronized to a repository, for example. In the prosecution, the examiner read "a server" as a repository.

However, with the newly amended claims the examiner is not sure whether applicant requires an additional computer (which would be a ground to 35 USC 112 first paragraph (a new matter) rejection or whether applicant intended some other meaning for the limitation, e.g. a particular place on the server or a client would read on "a repository". This is particularly ambiguous in light of the limitation suggesting that client and servers files are first marked then transferred (copied) to a repository, which at some later time would perform the synchronization ("marking un-matching files of the client files and the server files to be copied to a repository for matching to be synchronized at a later time"). The support for such a step is also not found in the original specification.

Additional problem is that the language suggests that files are already found not to match ("...marking un-matching files...") for the purpose of the matching ("...for matching..."), which also is not found in the specification.

For purpose of the further examination the newly introduced limitation is treated as naming a particular place (of a client or a server to which files are copied) "a repository" and requiring files to be synchronized to be marked and to requiring the synchronization occurring after the process of matching. Additionally, the term

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“matching” in the phrase: “files to be copied to a repository for matching to be synchronized” is treated as a process of copying the files.

9. Claims 1-2, 7, 10, 12, 20 and 29-32 have been examined.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior office action.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

10. Claims 1-2, 7, 10, 12, 20 and 29-32 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The newly introduced claim into claims 1, 10 and 20: *“wherein the synchronizing of the client files and the server files includes marking un-matching files of the client files and the server files to be copied to a repository for matching to be synchronized at a later time”* suggests that the transaction of synchronization involves at least three parties: a client, a server and a repository and that client’s and server’s files are first marked then transferred (copied) to a repository, which at some later time would

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perform the synchronization. However, the specification suggests only the synchronization to be performed between two entities: a client and a repository.

11. Also, the newly introduced limitations suggests that files are already found not to mach ("...marking un-matching files...") for the purpose of the matching ("...for matching..."), which also is not found in the specification. In fact it is not clear, why process of matching would be repeated.

12. Claims 2, 7, 12 and 29-32 are rejected by virtue of their rejected by virtue of their dependence.

Claim Rejections - 35 USC 103

13. Claims 1-2, 10, 12, 20, 29 and 31 are rejected under 35 U.S.C. 103(a) as obvious over Huang (U.S. Patent No. 6571245) in view of Margolus (U.S. Pub. No. 20040143743), and further in view of Chan (U.S. Patent No. 6748538) or alternatively in further view of Bolosky (U.S. Pub. No. 20020194484).

As per claims 1, 10, 12 and 20, Huang (U.S. Patent No. 6571245) discloses a network synchronization of a client/server files (Fig. 8 and col. 11 line 62-col. 12 line 9).

Huang does not disclose generating client message digests at a client, the client message digests corresponding to client files stored on at the client, wherein each client message digest corresponds to each client file on the client, wherein the client message digest uniquely identify contents of the client files via unique fingerprints corresponding to the client files, wherein the unique fingerprints are generated based on the contents of the client files by performing a cryptographic hash of the

contents of the client files, wherein the client files are cataloged by the client message digests and generating server message digests corresponding to server files, each server message digest corresponding to a server file on a server, wherein the server is coupled to the client over a network.

Margolus discloses generating client message digests (MD4) at a client, the client message digests corresponding to client files stored on at the client, wherein each client message digest corresponds to each client file on the client, wherein the client message digest uniquely identify contents of the client files via unique fingerprints corresponding to the client files, wherein the unique fingerprints are generated based on the contents of the client files by performing a cryptographic hash of the contents of the client files, wherein the client files are cataloged by the client message digests, generating server message digests corresponding to server files, each server message digest corresponding to a server file on a server, wherein the server is coupled to the client over a network and matching duplicate files using corresponding message digests (Margolus [6-7]).

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to include generating, prior to synchronization, client message digests at a client, the client message digests corresponding to client files stored on at the client, wherein each client message digest corresponds to each client file on the client, wherein the client message digest uniquely identify contents of the client files via unique fingerprints corresponding to the client files, wherein the unique fingerprints are generated based on the contents of the client files by performing a cryptographic

hash of the contents of the client files, wherein the client files are cataloged by the client message digests, generating server message digests corresponding to server files, each server message digest corresponding to a server file on a server, wherein the server is coupled to the client over a network and matching duplicate files using corresponding message digests as disclosed by Margolus in order to determine whether to synchronize a client and a server. One of ordinary skill in the art would have been motivated to perform such a modification in order to avoid unnecessary transmission and duplicate-storage of files.

Since introducing Margolus' invention would alleviate only the problem of transfer duplicate client/server files, synchronizing the client files and the server files, if the client files contents and the server file contents do not match would be necessary in order to successfully accomplish client/server file synchronization taught by Huang.

14. Huang and Margolus do not explicitly disclose performing a post-synchronization match of the client message digests with the server message digests and if the client message digests, detecting one or more client files corresponding to one or more unmatched client message digests, and re-synchronizing the client files and the server files, the re-synchronization including copying the one or more client files to the server such that the client message digests and the server message digest are matched.

However, the examiner points out that the limitation is implicit. It is clear that process of matching and synchronization client/server files does not end after a single implementation because the content of user's computers constantly changes,

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and any additional, subsequent synchronization, which inherently would involve matching, would read on a post-synchronization and re-synchronization.

Furthermore, computer operations can frequently be affected by various problems, e.g. network connection failure, computer bugs, multiple connections preventing access to a particular file (or a digest), etc. and as a result a double check and a repeat of a of computer tasks is well known in the art of computer science. It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to perform a post-synchronization match of the client message digest with the server message digests and if the client message digests do not match the server message digests. One of ordinary skill in the art would have been motivated to perform such a modification in order to ensure the successful completion of the synchronization task.

15. Huang and Margolus do not explicitly disclose tagging the one or more client files but the limitation is at least implicit. Tagging is simply an concept directed to identification of a particular object for the purpose of a particular task to be performed on (or in some situations by) the object, and in order for the files to be synchronized they should be identified as files to be synchronized, especially since computer tasks, such as synchronizing, back up, etc., are not completed instantaneously (see Boothby et al. (US Patent No. 7209911) for example).

Thus, it would have been obvious to one of ordinary skill in the art at the time of applicant's invention to tag the one or more client files. One of ordinary skill in the art

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would have been motivated to perform such a modification in order to indicate the files for subsequent synchronization.

16. As per the newly introduced limitation: "wherein the synchronizing of the client files and the server files includes marking un-matching files of the client files and the server files to be copied to a repository for matching to be synchronized at a later time" Margolus et al. teaches that a data item may be represented as a composite of objects, and the component objects may be separately deposited in the repository [110-111].

It is clear that in order to ensure that all the pieces of a composite object are copied into the repository (even though they are separately deposited) must be marked to reflecting the fact that they are part of the composite object and that they are to be copied.

Also, in situations where multiple files are compared it would have been obvious to one of ordinary skill in the art at the time of applicant's invention to configure the client system to mark the content on the client that was found not to match the repository content in order to prevent the match test repetition.

Also, in [28] it is taught that a plurality of clients are connected to a network store data in the repository. In multi node network environment it is likely that a client attempts to initiate data transfer to the repository and that the repository can not accept the requests (e.g. bandwidth limit, client licenses, no available ports, equipment malfunction, etc.)

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Thus, it would have been obvious to one of ordinary skill in the art at the time of applicant's invention to mark an object that is selected for copying to the repository. One of ordinary skill in the art would have been motivated to perform such a modification in order to ensure that the data that could not be accepted by the repository at the time of the request could be copied as soon as the repository was ready to accept it.

Furthermore, it is old and well-known practice to mark content (e.g. files) for future actions that is performed on the content (see U.S. Patent No. 6434621, or Windows 2000 (Task Scheduler) for example). One of ordinary skill in the art at the time of applicant's invention would have been motivated to marking content for future actions that is performed on the content (e.g. later copying to the repository) in order to provide flexibility when the action is performed.

17. As per claims 2, 29 and 31 the ordinary artisan would recognize that new files are frequently created on client (and a server) and, as a result, it would have been obvious to one of ordinary skill in the art at the time of applicant's invention to add client file contents that are missing on the server to the server given the benefit of including new files in synchronization process.

18. Claims 7, 30 and 32 are rejected under 35 U.S.C. 103(a) as obvious over Huang (U.S. Patent No. 6571245) in view of Margolus (U.S. Pub. No. 20040143743), and further in view of Chan (U.S. Patent No. 6748538) or alternatively in further view of Bolosky (U.S. Pub. No. 20020194484).

Huang in view of Margolus disclose synchronizing files using message digests, as discussed above.

19. Huang in view of Margolus do not disclose combining the message digests into a single message digest.

Chan teaches combining the message digests into a single client message digest (Chan, col. 3 line 45- col. 4 line 7).

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to combine message digests into a single message given the benefit of ensuring the integrity of the message digests.

20. Similarly, Bolosky discloses combining the message digests into a single client message digests (manifest, Bolosky, [7]).

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to combine message digests into a single message given the benefit of a increased efficiency of evaluating multiple digests.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter Poltorak whose telephone number is (571) 272-3840. The examiner can normally be reached Monday through Thursday from 9:00 a.m. to 4:00 p.m. and alternate Fridays from 9:00 a.m. to 3:30 p.m.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kambiz Zand can be reached on (571) 272-3811. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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SUPERVISORY PATENT EXAMINER